



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,276	10/15/2003	Michael P. Caren	10021300-1	8973

7590 05/10/2006

AGILENT TECHNOLOGIES, INC.

Legal Department, DL429

Intellectual Property Administration

P.O. Box 7599

Loveland, CO 80537-0599

EXAMINER

SORKIN, DAVID L

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

h

<b>Office Action Summary</b>	<b>Application No.</b> 10/687,276	<b>Applicant(s)</b> CAREN ET AL.	
	<b>Examiner</b> David L. Sorkin	<b>Art Unit</b> 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 16-29 is/are rejected.
- 7) ☒ Claim(s) 12-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kellogg et al. (US 2002/0097632). Regarding claim 1, Kellogg ('632) discloses an apparatus for mixing fluids, said apparatus comprising a housing (100) having an interior channel (203) with capillary dimensions, said interior channel comprising a plurality of biopolymer features arranged in a predetermines manner on the interior surface thereof (see [0060] and [0062]); an opening (junction of 202 and 203) at a proximal end of said interior channel; a chamber (204) at a distal end of said interior channel; a structural member in said interior channel adjacent said distal end thereof, the dimensions of and placement of said structural member being sufficient such that intermittent application of centrifugal force to said interior causes movement of said fluid in said channel (see paragraphs [0039], [0046], [0047] and [0048]); and a mechanism that intermittently generates centrifugal force on the interior of said housing to cause movement of said fluid in said channel (see paragraph [0054]). Regarding claim 2, said mechanism comprises a rotatable member (see paragraph [0037]).

3. Claims 4-11 and 16-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kellogg ('632) in view of Chee et al. (US 5,837,832). Regarding

Art Unit: 1723

claims 4-6, Kellogg ('632) explains in [0060] and [0062] that biopolymer features may be immobilized on the interior surface of the channel. However, it is not expressly stated that features form a linear microarray. Chee et al. ('832) teaches forming a linear microarray of biopolymer features (see col. 1, lines 19-24; col. 2 lines 26-37). It would have been obvious to one of ordinary skill in the art to have arranged the features of Kellogg ('632) in a linear microarray as taught by Chee ('832) to achieve the rapid and efficient detection capability explained by Chee in col. 7, lines 55-57. Regarding claim 7, Kellogg ('632) discloses an apparatus for conducting hybridization reactions, said apparatus comprising a housing (100) having an interior channel (203) with capillary dimensions comprising an array of biopolymers for conducting hybridization reactions (see paragraphs [0060] to [0062]); an opening (at the junction of 202 and 203) at a proximal end of said interior channel; a chamber (204) at a distal end of said interior channel; structural member in said interior channel adjacent said distal end thereof, the dimensions of and placement of said structural member being sufficient such that intermittent application of centrifugal force to said interior causes movement of said fluid in said channel between said linear microarray and said mixing area (see paragraphs [0039], [0046], [0047]); and a mechanism that intermittently generates centrifugal force on the interior of said housing to cause movement of said fluid in said channel (see paragraph [0054]). Kellogg ('632) explains in [0060] and [0062] biopolymer features may be immobilized on the interior surface of the channel. However, it is not expressly stated that features form a linear microarray. Chee et al. ('832) teaches forming a linear microarray of biopolymer features (see col. 1, lines 19-24; col. 2 lines 26-37). It would

Art Unit: 1723

have been obvious to one of ordinary skill in the art to have arranged the features of Kellogg ('632) in a linear microarray as taught by Chee ('832) to achieve the rapid and efficient detection capability explained by Chee in col. 7, lines 55-57. Regarding claim 8, a dispensing device is disclosed (see paragraph [0065]). Regarding claim 9, said biopolymers are polynucleotides and polypeptides (see paragraphs [0058] to [0062]). Regarding claim 10, said mechanism comprises a rotatable support for rotating said housing to produce said centrifugal force (see paragraph [0030]). Regarding claim 11, said rotatable support is a circular tray driven by a motor (see paragraph [0030] and claim 17 of the reference). Regarding claim 16, Kellogg ('632) discloses a method for conducting hybridization reactions (see especially paragraph [0062], but also paragraphs [0061] and [0060]), said method comprising introducing a sample into an opening (for example 201 or the junction between 202 and 203) at a proximal end of a housing (100) comprising an array of features for hybridizing to analytes in said sample (see paragraphs [0060] to [0062]), said housing having internal capillary dimensions, a mixing area separate from said linear array (see paragraph [0060] and Fig. 2) at a distal end of said housing and a structural member in said interior adjacent said distal end thereof, the dimensions and placement of said structural member being sufficient such that intermittent application of centrifugal force to said interior causes motion of said fluid therein (see [0039], [0046], [0047]); and incubating said sample in said housing under conditions for carrying out said hybridization reactions and during said incubation generating intermittent centrifugal force to cause reciprocal movement of said fluid between said linear array and said mixing area such that said fluid is mixed by agitation

Art Unit: 1723

(see [0039], [0046], [0047]). Kellogg ('632) explains in [0060] and [0062] that biopolymer features may be immobilized on the interior surface of the channel. However, it is not expressly stated that features form a linear microarray. Chee et al. ('832) teaches forming a linear microarray of biopolymer features (see col. 1, lines 19-24; col. 2 lines 26-37). It would have been obvious to one of ordinary skill in the art to have arranged the features of Kellogg ('632) in a linear microarray as taught by Chee ('832) to achieve the rapid and efficient detection capability explained by Chee in col. 7, lines 55-57. Regarding claim 17, the centrifugal force is generated by rotating said mechanism (paragraph [0039]). Regarding claims 18 and 20, the method further comprises, subsequent to said incubation, increasing said centrifugal force sufficient to cause said fluid to exit (see step f of claim 24 of the reference). Regarding claim 19, a wash fluid may be added (see [0055]). Regarding claim 21, the linear array is examined for results (see [0060]). Regarding claim 22, the housing is part of microfluidic system (see [0028]). Regarding claim 23, the housing is a channel in a microfluidic system (see [0028] and [0036])). Regarding claim 24, the features are biopolymers (see [0060] to [0062]). Regarding claim 25, said features are polynucleotides or polypeptides (see [0060] to [0062]). Regarding claim 26, Chee et al. (US 5,837,832) further teach the linear array having more than one thousand features (see col. 172, lines 51-52). Regarding claims 27-29, terms throughout the Kellogg ('632) like "assay", "detecting" and "detection cuvette" as well as the specific detection systems claimed in claims 19-22 of the reference would have suggested forwarding, transmitting and receiving data to one of ordinary skill in the art.

***Allowable Subject Matter***

4. Claims 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Contrary to applicant's remarks, Kellogg disclose an opening at a proximal end of an interior channel. For example, channel 203 opens to 202. The junction of 202 and 203 constitutes an opening at the proximal end of channel 203. Also, 201 is another opening.

6. Claim 12-15 as currently amended are not rejected, because the prior art does not disclose the claimed repetitive movement between the channel and the chamber, in combination with the remaining limitations of these claims, including the limitations of their respective parent claims and intervening claims.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the


Art Unit: 1723

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David L. Sorkin  
Primary Examiner  
Art Unit 1723

DLS